

AWARD NUMBER: W81XWH-05-1-0362

TITLE: Project Collaboration Research Initiative (PCRI)

PRINCIPAL INVESTIGATOR: Karen Smith, M.D.

CONTRACTING ORGANIZATION: Health Officers Association of California  
Sacramento, CA 95814

REPORT DATE: April 2008

TYPE OF REPORT: Addendum to Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;  
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. <b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b>					
1. REPORT DATE 1 April 2008		2. REPORT TYPE Addendum to Final		3. DATES COVERED 1 Jul 2006 – 28 Feb 2008	
4. TITLE AND SUBTITLE  Project Collaboration Research Initiative (PCRI)				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER W81XWH-05-1-0362	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)  Karen Smith, M.D.  E-Mail: ksmith@co.napa.ca.us				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Health Officers Association of California Sacramento, CA 95814				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The purpose of Project Collaboration Research Initiative (PCRI) was to show that secure, accessible online collaboration tools would help to advance public health emergency preparedness in California. Through development and adoption of appropriate technology, this objective was achieved.					
15. SUBJECT TERMS public health, collaboration tools, health officer					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT  UU	18. NUMBER OF PAGES  14	19a. NAME OF RESPONSIBLE PERSON USAMRMC
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code)

## Table of Contents

	<u>Page</u>
Introduction.....	4
Body.....	4
Key Research Accomplishments.....	10
Reportable Outcomes.....	10
Conclusion.....	10
Appendices.....	11
Appendix 1: Report from Napa County .....	11
Appendix 2: List of Personnel.....	14

## **Introduction**

The Project Collaboration Research Initiative (PCRI) studied how real-time collaboration technology, already in use by the United States Defense Intelligence Agency among other agencies, can best be adapted to meet the collaboration, rapid response, and seamless coordination needs of California's 61 geographically disbursed city and county physician health officers. Health officer responsibilities involve the coordination of appropriate responses to major public health events – many of which can have implications across local jurisdictions and regions, such as bioterrorism threats and attacks, emerging infections, and major epidemics. Over the course of the project, the online collaboration software was developed, piloted, and finally adopted by many jurisdictions in California. Although originally intended for use in emergency response, PCRI's collaboration tools are being used by the health officers on a regular basis for routine and ad-hoc meetings.

## **Body**

As stated in the approved Scope of Work, the hypothesis being tested is that "inefficiencies in the local public health system can be improved through the development and use of secure and reliable collaborative information exchange technologies." We feel that this hypothesis proved to be correct. According to Roberta Lawson, Executive Administrator of the California Conference of Local Health Officers, the health officers use this technology for weekly executive committee meetings, monthly board meetings, and quarterly committee meetings. Ms. Lawson says that "all [PCRI] meeting participants appreciate the ability to attend a meeting without having to use time and funds to travel. Being able to see presentations as they are web cast is of great value. Additionally, CCLHO is able to draw from a national pool of presenters that would otherwise be unavailable to travel to the meeting location to provide valuable information."

It is certainly telling that the project can be said to have succeeded despite tragic setbacks that occurred as it drew to a close. Project Manager, Roger Rosenberg, succumbed to failing health related to liver disease and passed away in February, 2009. Before his death, towards the middle and end of the project, Mr. Rosenberg suffered numerous health-related problems. Throughout his medical difficulties, Mr. Rosenberg's passion for the project was inspiring and effective.

Sadly, Ms. Kelly Rivera of Public Health Foundation Enterprises died unexpectedly of a stroke shortly before Mr. Rosenberg did. Her project management skills and contract expertise were sorely missed as we put together this final report. We will miss her easygoing manner and keen intelligence.

A further setback was the frequent lack of a project assistant to help with administrative tasks. Two assistants, Mee Vang, and Anthony Pane, worked for the project for a short time, but the position proved to be difficult to fill in the long-term.

In spite of these events, California's health officers are benefitting from online collaboration technology more now than ever before.

## **Goals**

There were four major goals of PCRI:

- (1) Define appropriate public health uses of secure technologies and processes, including secure virtual private networking, in a network environment that meets all protections required by medical ethics and current state/federal laws;
- (2) Confirm or identify an appropriate level of sophistication for the system wherein the perceived benefits outweigh the costs of the system's economic, social and practical uses;
- (3) Determine best practices; and
- (4) Share knowledge and lessons learned with public safety, law enforcement, and other local, state, and federal public health agencies.

The first goal was accomplished. This project showed that public health professionals and scientists can use a secure online meeting environment to conduct business and communicate, both on a routine basis and, with proper training and protocols, during emergency situations.

The second goal was also accomplished. The PCRI project went through various iterations before its present form. The InfoWorkSpace software originally used was determined to be too burdensome for health officers. Together with technology partners Direct Apps, HOAC found a software that better fit health officer needs, Interwise. Direct Apps also developed a web portal for ease of scheduling and entering meetings, and upgraded several aspects of the software. As a result of this, our online meeting environment is being used regularly, and that is proof of its benefits.

Unfortunately, the third goal was not met. Because of the failing health of Project Manager Roger Rosenberg during the last period of the project, and his death at the end of the project, best practices were never determined.

Despite these setbacks, the fourth goal was achieved. Health officers reached out to many other stakeholders regarding the collaboration project. The governor's staff was supportive of the project and wrote a letter to Congressman Jerry Lewis on the subject. The California Association of Public Health Laboratory Directors and the County Health Executives Association of California are using the software regularly.

The objectives outlined in the approved Scope of Work are listed below. After each objective, there is a report on whether or not the objective was achieved.

### **Specific objectives: Year 1 - Planning and System Development**

- **Build business case – identify appropriate information, work or public health tasks/functions that are amenable for each aspect of the collaborative technology both under urgent and non-urgent conditions. The proposed functions should enhance operations, address real needs, take into consideration the interactions of components of the public health system; be appropriate for electronic interchange, and be affordable, sustainable, and justified.**

Project Manager Roger Rosenberg worked to understand the needs of the health officers. With the help of the Health Officers Association of California (HOAC) Board of Directors, he successfully identified many counties willing to participate in a pilot program. He listened to feedback from the Board and pilot counties to see what health officers needed from collaborative technology and modified the project accordingly throughout its duration.

- **Clearly define user's collaboration and training needs, requirements, and expectations.**

This objective was achieved. Project Manager Roger Rosenberg worked tirelessly during Year 1 of the project to set up training workshops across the state. He worked with both health officers and the IT staff at appropriate health departments. Mr. Rosenberg understood the needs of the IT departments in each different county and allowed them to examine the technical details of the VPN and software.

- **Adopt an incremental implementation approach for the technology beginning with manageable projects that key parties agree are a public health priority.**

This objective was achieved. The technology roll-out was controlled and methodical, identifying each county that was to participate and working closely with them to set up the health officer and his/her IT team. As of this writing, most counties in California have at least one PCRI license, and roll-out is considered complete. Other users of the system include the California Association of Public Health Laboratory Directors and, very soon, the County Health Executives Association of California.

- **Develop preliminary user protocols.**

PCRI users generally conform to accepted norms during meetings without any officially established protocols.

- **Provide training to pilot test participants.**

This objective was achieved. As outlined in the September 2005 quarterly report, training workshops were held in four strategic locations throughout the state (Redding, Sacramento, Alameda, and Santa Ana) so that the Health Officers and IT contingents could train of the

InfoWorkSpace collaboration tool-set; and to meet with the technical team to deal with any problems or objections that might occur during or after installation.

### **Specific objectives: Years 1 and 2: Application Testing**

- **Develop baseline information against which to measure improvements in public health capacity (e.g., identification of the problem, response time, deployment of resources).**

Unfortunately, due to the personnel difficulties listed above, this objective was not achieved.

- **Develop a metric for assessing changes in public health capacity and response.**

Unfortunately, due to the personnel difficulties listed above, this objective was not achieved.

- **Pilot test the collaboration technology with 20 health jurisdictions under non-urgent conditions.**

This objective was partially achieved. The technology was tested in non-urgent conditions in sixteen counties, as specified in the June 2005 quarterly report.

- **Pilot test the collaboration technology statewide using a bioterrorism (BT) exercise/scenario.**

This objective was not achieved. No statewide exercise was conducted using PCRI. However, Napa County did perform a drill using PCRI extensively as a way for the health department, fire department, and other stakeholders to communicate during a simulated emergency. The report that resulted from this drill is attached.

- **Determine which technology components are most useful in enabling effective collaboration and make recommendations concerning lessons learned by participants, needed system improvements, additional user training, and potential for sustainability**

This objective was achieved. During year two of the project, it became clear that health officers had significant difficulty with the InfoWorkSpace software, which had been used up to that point. PCRI Project staff and DirectApps conducted a market review to find other products that might better meet the needs of the health officers.

- **Finalize communication standards and protocols to enable the most efficient and effective use of the technology, and that can be adhered to in the event of a crisis. These protocols will be different for each type of situation – i.e. the standards and protocols used in a crisis may vary depending upon the type of crisis. They will also vary based on the type of user – physician health officers, administrators, public health nurses, epidemiologists, and laboratorians.**

Unfortunately, due to the personnel difficulties listed above, this objective was not achieved.

**Specific objectives: Year 3 - Expansion and Dissemination**

- **Develop a standard agreement for use of the collaborative technology and expand use to all 61 local health jurisdictions, including training, technical assistance, and help desk functions.**

This objective was mostly achieved. PCRI has been successfully rolled out with training, technical assistance, and help desk functionality throughout the state. There are 221 licenses in use on the system representing 57 jurisdictions.

- **Identify other applications and technologies that can be integrated with the collaboration technology and protocols to extend the health officers capabilities, including existing and future systems**

This objective was achieved. Interwise was successfully linked to Outlook in 2007, which greatly increased the California Conference of Local Health Officer's level of satisfaction with the product. It allowed Executive Administrator Roberta Lawson to create recurring online meetings that would feature the same link and the same phone number each time. After that time, PCRI meetings became more common than teleconferences, and virtually as effective as in-person meetings.

- **Illustrate how the collaboration processes, protocols, technologies, and "lessons learned" in this project could be utilized by the military and other governmental agencies (e.g. law enforcement and public safety) to further enhance the ability of local health officers to mount an appropriate and coordinated local response to public health emergencies.**

Unfortunately, due to the personnel difficulties listed above, this objective was not achieved.

- **Report on the progress of the PCRI to the CA public health community at CCLHO monthly and semi-annual meetings, state meetings and in national venues.**

This objective was achieved. Meeting minutes show that reports were made repeatedly at CCLHO and HOAC monthly and semi-annual meetings. PCRI was also presented as a poster session at the annual meeting of the National Association of City and County Health Officials (NACCHO) in Sacramento in the fall of 2008.

- **Identify components of the annual and final reports of interest to public health agencies and their partners and develop brief reports for public audiences.**

Unfortunately, due to the personnel difficulties listed above, this objective was not achieved.



Finally, as outlined in the Scope of Work, the expected outcomes of PCRI are listed below. After each outcome, there is a report on whether or not the outcome was attained.

**1. Public Health Capacity: Enable California's health officers to better perform aspects of their jobs using a collective process and collaboration technology.**

Outcome attained. Certain aspects of health officer duties have become easier because of the collaborative technology introduced by PCRI. The most notable result is that health officers have to travel much less frequently. Using PCRI for monthly board meetings for both HOAC and CCLHO has meant that board members can participate fully in a meeting, even from a distance. They are able to view the same documents and presentations that the other attendees do without leaving their jurisdictions, spending unnecessary funds, or wasting their valuable time stuck in traffic.

**2. Response time: Enable California's health officers to improve the timeliness of response to public health crises, emerging infectious diseases, and BT threats by enhancing their ability to share information and consultation.**

At this time, we are unable to show that this outcome was attained.

**3. Professional Consultation: Enable California's health officers to better provide their professional, medical expertise during public health crises, empowered through real-time collaboration with their colleagues across the state.**

This outcome was partially attained. Although not yet tested in a real emergency situation, the PCRI project has certainly been shown to help during simulated emergencies (see attached Napa County after-action report). The simulation in Napa County included training other emergency responders in PCRI use the day before the exercise. In order to be effective across the state, emergency response partners must be involved and trained well in advance. In an actual emergency, there is little time for training.

**4. Information Sharing: Facilitate a dialogue between physician public health officers and military medical planners and personnel that clarifies their respective roles with regard to medical readiness during large-scale threats to the public health, disease outbreaks, and other public health emergencies.**

This outcome was partially attained. While the expected nexus with military personnel was never pursued, there is certainly now an increased willingness and ability to share information and expertise among California's health officers. The physician health officers, their staffs, and their laboratory counterparts are now willing and able to collaborate effectively online.

**5. Mobilizing other local resources: Initiate a process wherein collaborative technologies that are effective in the public health community can be extended to public safety and law enforcement partners.**

At this time, we are unable to show that this outcome was attained.

### **Key Research Accomplishments**

- California's physician health officers, their staffs, and their laboratory counterparts are now willing and able to collaborate effectively online.
- Online collaboration technology designed by PCRI has been shown to help during simulated emergency situations (see attached Napa County after-action report).
- Regular use of collaborative technology has eased the travel burden on health officers in California and enabled them to work more effectively together over long distances.

### **Reportable Outcomes**

None.

### **Conclusion**

The research performed by the health officers using Project Collaboration Research Initiative is providing useful technology and improving the practice of public health in California. Using the online meeting software developed through this project, the health officers can meet together securely and effectively without spending valuable time and resources travelling. Public health partners are also beginning to use the system, making it an even more effective collaboration tool. To be fully effective, more state and local entities must be introduced to the system.

## **Appendix 1: Report from Napa County**

### **PCRI USE DURING NAPA EARTHQUAKE EXERCISE**

AUGUST 31, 2006

Napa County ran a county-wide earthquake exercise on August 31, 2006 focusing on command and control. Participating, by activation were: Napa County Operational Area Emergency Operations Center (Op Area EOC); Napa County Health and Human Services Department Operations Center (HHSA DOC); Napa County Sheriff's EOC; City of Napa EOC; American Canyon EOC; Yountville EOC; and Calistoga EOC.

The HHSA DOC serves as the Medical, Health and Care and Shelter branches of the Op Area EOC but is located approximately 3 miles from the EOC. A Medical Health Operational Area Coordinator (MHOAC), the Public Health Officer for this exercise, is located at the Op Area EOC to ensure that communication, including plans and updates, between the DOC and EOC flows smoothly and to make any requests for out of county resources that the DOC considers necessary.

PCRI was used as an adjunctive communications tool between the MHOAC and the HHSA DOC. Specifically, at the HHSA DOC, the Plans (Incident Action Planning Group) and Operations Sections (Medical Branch and Section Chief) were continuously on-line with the MHOAC and the Command Section logged into the meeting later during the event. Participant staff in the DOC attended a 30 minute training the day before the exercise. The specific objectives for the use of PCRI were to determine the ability to maintain contact between MHOAC and HHSA DOC using voice and document sharing capabilities and the acceptance, by staff, of PCRI as a communications tool. Except for the MHOAC who logged in via the PCRI portal and established the meeting room, all participants logged in a[s] invited guests.

Throughout the exercise the Plans Section retained "presenter rights" and served as the entity to oversee uploading of documents and updates. The materials on the PCRI white board were also projected in the HHSA DOC.

#### **SUCSESSES**

- Staff was able to log into PCRI, maintain a presence in the exercise room, and upload and view documents with only ½ hour of training the preceding day.
- DOC Plans Section was able to visually share the DOC Incident Action Plan and Hospital Status report with the MHOAC as soon as it was available.
- MHOAC was able to verbally request to speak to various DOC staff and to pass on Op Area EOC requests for information via the exercise room.
- Use of Notes function was helpful in getting the attention and making requests of participants who were on line but not necessarily actively participating in the room at any given time. When that participant "returned" to the room, the note was seen and could be responded to.

- Participants were able to save “snapshots” of the white board and transcripts of the notes which will be included as part of the archive of the event.

**Overall:** PCRI showed its value in maintaining multi-modality, ongoing communications in a simulated crisis. Overall, communications were improved with minimal investment in training time.

## **FUTURE CHALLENGES**

- The DOC Director attempted to log into the exercise room during the event but was unable to successfully establish a phone connection.  
**Follow up:** this problem also occurs periodically in other (e.g. HOAC) meetings. Continue to work with PCRI development staff on solutions to the phone connection issue.

### **Person responsible:**

- While the white board was useful for displaying the same information to the MHOAC and DOC, it would be helpful to be able to upload documents in their original format so that the MHOAC can print them at the Op Area, rather than relying on fax or email.  
**Follow up:** Explore options for uploading documents in original format within PCRI.

### **Person responsible:**

- It was difficult for staff actively involved in managing the response to take time to be fully interactive in the exercise room. Having a single person in the Plans Section who was constantly “on line” did work well for getting others’ attention, however. The DOC and EOC environments were so noisy that it was difficult to have voice communications. It would have been useful for the MHOAC to listen in to the DOC briefings.  
**Follow up:** Develop protocols for PCRI use in DOC. These protocols will include establishing a “presenter” who remain present in the room, guidelines for the use of notes and the white board, guidelines for the frequency of “check in” and establishing briefings. Briefings guidelines shall include 1) identifying attendees, 2) responsibility for establishing room and performing notifications of briefings, 3) guidelines for archiving briefings, and 4) other. Review PCRI capabilities to determine possibility of assigning multiple “presenters”.

### **Person responsible:**

- There were limitations to using a single PCRI log into the portal with invitations to others rather than full log on by everyone. We were limited to a single room and couldn’t upload any documents prior to the meeting.  
**Follow up:** Obtain PCRI usernames and passwords for use by Napa DOC/EOC. Work with PCRI developers to create Napa-specific file folders on the server secure and accessible only to Napa users. Provide additional training to potential PCRI users to ensure that the full capability of the program is available.

**Person responsible:**

- The EOC and DOC were so noisy that it hindered the ability to communicate verbally.  
**Follow up:** Ensure that PCRI protocols include the necessity to mute any microphones not actively in use.

**Person responsible:**

- Not all of the information shared via PCRI was archived.  
**Follow up:** Include in the guidelines being developed guidance on the use of various methodologies to archive materials/discussions, etc from an event or exercise.

**Person responsible:**

**Overall:** The limited use of PCRI during this exercise did not give us the chance to utilize all the capabilities of the system. It would have been useful to have the hospitals connected as well as the Plans Section of the Op Area EOC. Some of these capabilities would undoubtedly have been needed in a longer term exercise (e.g. document sharing capabilities during a briefing). It will be necessary to develop PCRI use protocols (and “cheat sheets”) for incorporation in DOC documents and to provide additional training to staff who may have occasion to use the system to ensure sufficient familiarity to make it a help rather than hindrance when it is needed during a real event.

In the future with sufficient preparation the capabilities inherent in PCRI could be expanded to include linking additional EOCs and Sections within those EOCs to facilitate communications during events and exercises. Doing this would require some adaptation to PCRI – such as Napa-specific confidential file folders and logins – and sufficient “buy-in” from other agencies to assign staff to training and planning meetings and to commit to partial activation for communications drills.

Regardless of interest on the part of other agencies, HHSA will continue to plan for more in depth implementation of PCRI for those areas of responsibility within the Agency’s scope – specifically Medical, Health and Care & Shelter.

**Appendix 2:**  
**List of Personnel Receiving Pay**

Kat DeBurgh  
Mandi Miessek  
Anthony Pane  
Bruce Pomer  
Roger Rosenberg  
Mee Vang